



Medical College Admission Test : 2006—2007

Physics 1st paper

- Which one is not true?
 - Addition, subtraction, multiplication of scalar quantity is carried out by simple algebraic rules.
 - The combination of many frequency is called note.
 - Boiling and melting point of all non crystalline substance are same ✓
 - One mole of any gas at same temperature and pressure occupies same volume.
- Which one is not true?
 - The centre of gravity of a uniform cylindrical body is at the mid point on its axis.
 - Mean free path is inversely proportional to the density of gas.
 - The potential energy of a system or a body or a system of bodies is the ability of doing work during any change in position, or deformation from its initial state or form.
 - The work done by conservative force can not be regained completely ✓
- "It is impossible for a self acting machine, without the help of any external energy to transfer heat energy from a body to another at a high temperature" - It's the statement of -
 - Kelvin
 - Carnot
 - Clausius ✓
 - Plank
- If more than one sound makes a melodious sound it is called -
 - Orchestra
 - Melody ✓
 - Chord
 - Harmony
- The device by which high temperature is measured is called -
 - Thermometer
 - Pyrometer ✓
 - Thermocouple
 - Hypsometre
- Which one is not true?
 - Unit of momentum = unit of mass \times unit of velocity.
 - If angular velocity is multiplied by radius, linear velocity is obtained. ✓
 - Intensity of sound is proportional to the square of frequency of the source.
 - Adiabat is more vertical than isotherm.
- Which one is not a characteristics of progressive wave?
 - Time period of the particles is equal but amplitude is not equal ✓
 - All particles of the medium are in periodic motion.
 - The phase of the wave is transferred from particles to particles.
 - The particles always remain in vibration.
- Which one is not true about surface tension of liquids?
 - It increases with the increase in temperature ✓
 - It depends on the medium in contact with the free surface.
 - It decreases if anything floats on the surface.
 - It decreases in electrification of the liquid.
- Which one is not a characteristic of radiant heat?
 - Radiant heat obeys the inverse proportional law.
 - No medium is required
 - Can not transmit through vacuum. ✓
 - It travels with the same velocity as light.
- Which one is true?
 - Entropy is the measure of unavailability of energy. ✓
 - The vectors with 'Zero' magnitude is called Null vector.
 - Dimension of linear velocity is ms^{-1} .
 - Acceleration of any particle is inversely proportional to force applied on it.

Physics 2nd paper

- Which one is not a property of cathod ray?
 - It can produce fluorescence
 - It produces heat
 - Cathod ray attracts each other ✓
 - It has momentum.
- Position of image :- At the centre of curvature.

Nature :- real and inverted.
Magnification :- 1

According to the description stated above on a concave mirror the object will be

 - in between principal focus and centre of curvature
 - in the centre of curvature. ✓
 - In infinity
 - in between centre of curvature and infinity.





3. Which one is not true?
- A. Light or any kind of radiation is nothing but collection of quanta or photon.
 - B. If the electroscope is negatively charged and the body to be tested is positively charged, the leaves will be diverged.
 - C. If a current is allowed to flow through any conductor having different temperatures at different portions, then either heat is produced or absorbed along the length of conductor. It is called peltier effect.
 - D. Optical centre of plane convex and plane concave lens lie inside and in the mid point of lens.
4. The amount of heat produced due to flow of current through any conductor is proportional to its resistance, provided the current & the time of flow remain constant. It is -
- A. 1st law of joule
 - B. First law of Kirchoff
 - C. 2nd law of Kirchoff
 - D. 2nd law of Joule. ✓
5. Which one is not a property of electric lines of force?
- A. Two lines of force never intersect each other.
 - B. These lines are curved and open.
 - C. They enter positively charged conductor vertically with its surface ✓
 - D. They come out from positive charge and end at negative charge.
6. Which one is not true?
- A. If the electrolytes of secondary cell are exhausted, new electrolytes are to be added again. ✓
 - B. Air is not a conductor in normal pressure.
 - C. Calorie is multiplied with 4.2 to convert into Joule.
 - D. Current flow of a circuit can be measured in ampere by ammeter.
7. Which one is not true?
- A. A low resistance is connected in shunt.
 - B. If the angle of prism is less than 60, it is called thin prism.
 - C. $1\text{Å} = 10^{-10}$ metre.
 - D. The substances having spontaneous magnetization even in the absence of magnetic field are called paramagnetic substance. ✓
8. Which one is not true about magnetic lines of force?
- A. They intersect each other near magnetic pole. ✓
 - B. Magnetic lines of force are closed lines
 - C. They exert lateral pressure on each other.
 - D. An imaginary, single north pole travels along the lines.
9. Which one is not true?
- A. An unknown resistance can be determined by applying Wheatstone bridge principle.
 - B. According to Fleming's left hand rule, thumb indicates the electricity.
 - C. Ferromagnetic substance does not have any certain curie point. ✓
 - D. Unit of radioactivity is curie.
10. Which one is not true?
- A. Between two conductors of D. C. line which one is positive, can be detected by Electrolysis.
 - B. Light is one type of electromagnetic wave.
 - C. If the current flow is one unit, flux = self inductance.
 - D. For both concave and convex lens, $f = r$. ✓

Chemistry-1st paper

1. Which one is not true?
- A. In graphite every carbon atom forms covalent bond with other three carbon atoms by three sp^2 hybrid orbitals.
 - B. Solution with known strength is known as standard solution.
 - C. If the magnitude of equilibrium constant is greater, there will be less amount of product. ✓
 - D. Penetrating power of β -ray is greater than that of x-ray but lesser than that of γ -ray.
2. Which one is not true?
- A. To make a standard hydrogen electrode, temperature solution in all electrodes is kept 298K (25°C)
 - B. Metallic bond is weaker than covalent bond
 - C. Although the term chemical equilibrium is applicable for reversible reaction only, all reactions can reach equilibrium in proper condition.
 - D. Radius of cation is less than that of its atom. ✓





3. Which one is not correct?

- A. Hydrogen can be placed in both group IA & group VIIA.
- B. The component in a solution with less quantity and that dissolves other component is known as solvent.
- C. Dry cell is one type of Leclanche cell.
- D. In case of Heat of Solution, solute is 1 mole and solvent must be in large amount.

4. Which one is not correct?

- A. On experiment it has been proved that endothermic reactions are spontaneous.
- B. Orbital formed by the process hybridization is called hybrid orbital.
- C. The substance that dissociates completely in solution or in molten state and is converted into ions is called strong electrolytes.
- D. In practical, most of the solution acts as non ideal solution.

5. Which one is not true?

- A. If total internal energy of reactant is greater than that of product, it is called endothermic reaction. ✓
- B. Gaseous state of any matter below critical temperature is called vapour.
- C. Atomic mass of two different elements can be same.
- D. Boiling and melting point of He is lowest of all elements.

6. Which one is not a type of ionic bond?

- A. Coordinate ionic bond.
- B. Ionic bond
- C. Covalent bond
- D. Coordinate covalent bond

7. Substance that donates proton to other substances are called acid. On the otherhand, substances that accepts proton are known as base. This is known as-

- A. La Chatelier theory
- B. Arrhenius concept.
- C. Ostwald's dilution law
- D. Bronsted lowry concept. ✓

8. Which one is not correct.

- A. Ionic compounds conducts electricity in solution
- B. General electronic configuration of valence shell of group IIA elements is ns^2 .
- C. After equalization of a chemical reaction '=' is used instead of ' \rightarrow ' ✓
- D. Basic metals reacts strongly with water to form metallic hydroxide and hydrogen.

9. In a chemical reaction, if the reactants and products are fixed, then the change of enthalpy of the reaction will remain same whether the reaction takes place in single step or in several steps. This is known as -

- A. Law of Lavoisier and Laplace
- B. Rault's law
- C. Hess's law of constant heat summation
- D. Fazan's rule

10. Which one is not true?

- A. Melting point of ionic compounds is very high.
- B. Second ionization energy is greater than 1st ionization energy in case of alkali metals.
- C. Energy can not be generated or damaged. It can be converted from one type to another - it is the first law of thermodynamics.
- D. Intermolecular force is maximum in case of vapour.

11. Which one is not a characteristics of covalent compound?

- A. Insoluble in water
- B. Isomerism is not common ✓
- C. Non polar
- D. They are volatile.

12. % of carbon in Na_2CO_3 is -

- A. 15.9%
- B. 43.4%
- C. 45.3%
- D. 11.3% ✓

Chemistry 2nd paper

1. The reaction in which ethene is produced from ethanol at 160°C temperature in presence of H_2SO_4 (dehydrating agent) is called-

- A. Substitution reaction
- B. Elimination reaction ✓
- C. Addition reaction
- D. Re-arrangement

2. Which one is not true?

- A. Mixture of 95.06% ethanol and 4.94% water is known as rectified spirit.
- B. On hydrolysis Ferric chloride yields Ferric hydroxide and diluted HCl acid. ✓
- C. Dichloro difluoro methane is called Freon-21. ✓
- D. To test the purity of CHCl_3 , 1-2 drops of AgNO_3 is added into it before use.

3. Which one is not a characteristics of aromatic compound?

- A. Gives halogenation, nitration easily
- B. Ring shaped
- C. Easily oxidized by KMnO_4 . ✓
- D. % of carbon is greater than aliphatic compounds.





4. Which one is not a property of SO_3 ?
A. Produces H_2SO_4 in water.
B. Solid but volatile
C. Highly soluble in water
D. It is mainly a reducing agent. ✓
5. Which one reacts with Grignard reagent to produce 3° alcohol?
A. Formaldehyde B. Methanal
C. Ethanal D. Ketone
6. $\text{CH}_3\text{-CH}_2\text{NH-CH}_3$ is-
A. Ethyle methyle amine ✓
B. Ethyle amine
C. Iso propyl amine.
D. Tri methyl amine
7. Metallic halide reacts with heated conc. H_2SO_4 and manganese (iv) oxide or manganese di oxide to produce halogen except-
A. Fluoride ✓ B. Bromide
C. chloride D. Iodide.
8. Which one is not true?
A. 1% ethanol is added to CHCl_3 to prevent hazards of phosgene gas.
B. Di nitrogen pentoxide is an oxide of nitrogen which is a colourless solid and is an anhydride of HNO_3 .
C. If 1° alcohol is added with Lucas reagent at room temperature, white ppt. is formed very quickly. ✓
D. Thermoplastic plastics are simple chain polymers.
9. Which one is not true?
A. Phenol does not react with Lucas reagent, but alcohol reacts with it to produce white ppt.
B. During ring test of identification of nitrate group newly prepared ferric sulphate solution must be taken. ✓
C. According to Huckel rule Benzene is an aromatic compound, as it has 6 delocalized π electron & 6 is a huckel number.
D. Functional group of ketone is - CO -.
10. Which one is not true?
A. Formula of ester is R-COOR' ; Here R & R' are alkyl or aryl group.
B. By overlapping two 'S' orbitals, always sigma bond is formed.
C. Lucas reagent is used to differentiate between 1° , 2° , 3° alcohol.
D. Metallic bond in d block elements is less strong than in s block elements.
11. Which one is not true?
A. During Borax bead test, borax bead looks reddish brown in both heated and cold state in presence of cobalt. ✓
B. Presence of π bond is detected by seeing the change of red colour of Br_2 .
C. If one hydrogen atom of Benzene ring is substituted by one OH group, phenol is obtained.
D. 2,4 - dinitrophenyl hydrazine is a test for identification of carbonyl ($>\text{C} = \text{O}$) group.

Botany

1. Which one is not true?
A. The third layer or outgrowth in lychee is known as aril.
B. Fibrous root is seen in guava tree. ✓
C. Turnip is an example of cruciferae.
D. Glycogen is completely absent in green plants.
2. Which one is incorrect about classification of penicillium?
A. Class : Ascomycetes
B. Kingdom : Fungi
C. Family : Penicillium. ✓
D. Division : Ascomycota
3. Which one is a characteristics of root?
A. Xylem is endarch type.
B. Vascular bundle is always radial type. ✓
C. Cortex is comparatively smaller.
D. Hypodermis is present.
4. Which one is not true?
A. Raffinose is a disaccharide
B. Virus has both DNA and RNA
C. Flower of Dicot plants are trimerous
D. Fermentation takes place in presence of zymase enzyme. ✓
5. Which one is not true?
A. Osmosis takes place in one type of solvent.
B. Nucleolus helps in ribosome synthesis.
C. Loop is formed in metaphase of mitosis. ✓
D. Bundle sheath of C_3 plants are not photosynthetic.
6. Which one is not a characteristics of Fungi?
A. They are saprophytes
B. Cell wall is made of cellulose. ✓
C. There is no photosynthetic pigment.
D. Most of them are multicellular.
7. Which one is not true?
A. Rate of diffusion depends on atmospheric pressure. Rate of diffusion increases with its increase and decreases with its decrease. ✓
B. Chromosome map is possible by determination of % of crossing over.
C. Meiosis explains Mendel's law.
D. Lignin is present in the cell wall of sclerenchyma.





8. Production of seed without fertilization is called-
 A. Agamospermy B. Apogamy
 C. Apospory D. Apospermy.
9. The physiological process by which the excess water is lost from the living tissues of plants in the form of vapour is called -
 A. Osmosis B. Imbibition
 C. Transpiration D. Guttation.
10. Primary phloem does not have -
 A. Bast fibre ✓ B. Sieve tube
 C. Companion cell D. Phloem parenchyma
11. Which one is caused by climacteric rise?
 A. Changes of flavours due to ripening of fruits.
 B. Softening of pectic substance.
 C. Dramatic changes in respiration. ✓
 D. Changes of pigmentation.
12. Which one helps in protein synthesis and fat metabolisms?
 A. Mitochondria
 B. Endoplasmic reticulum.
 C. Golgi body
 D. Ribosome. ✓
13. Which one is not true about respiration?
 A. Water is released.
 B. All the reactions take place inside the chloroplast. ✓
 C. This process runs 24 hrs.
 D. Energy is liberated.
14. Which one is a structural adaptation of plants for reducing transpiration?
 A. Reducing the volume of leaves
 B. Reducing the number of leaves.
 C. Shrinking of leaves.
 D. Cork formation in stem. ✓
5. Which one is not true?
 A. If more than one annual ring is formed in one season false annual ring is formed.
 B. E. Coli has various strains.
 C. Colour of fruits are composed of chromoplast.
 D. Anaerobic respiration has four stages - Glycolysis, Acetyl Co-A formation, Krebs cycle, Electron transport system. ✓
2. Which one has least latent period?
 A. Plasmodium vivax
 B. Plasmodium ovalae.
 C. Plasmodium falciparum ✓
 D. Plasmodium malariae.
3. Which one is not a part of first maxilla of cockroach?
 A. Sub mentum ✓ B. Cardo
 C. Stytes D. Lacinia.
4. Which order is correct.
 A. Primary bronchus → Bronchiole → Respiratory bronchiole → Terminal bronchiole → Alveolar sac → Alveolar duct → Alveoli.
 B. Primary bronchus → Secondary bronchus → Respiratory bronchiole → Terminal bronchiole → Alveolar duct → Alveolar sac → Alveoli.
 C. Primary bronchus → Secondary bronchus → Bronchiole → Terminal bronchiole → Respiratory bronchiole → Alveolar duct → Alveoli → Alveolar sac.
 D. Primary bronchus → Secondary bronchus → Bronchiole → Terminal bronchiole → Respiratory bronchiole → Alveolar duct → Alveolar sac → Alveoli. ✓
5. Which one is not a type of cartilage on the basis of structure of matrix?
 A. calcified B. Spongy ✓
 C. Hyaline D. Elastic
6. Which one is not a tarsal bone of human body?
 A. Cuneiform B. Trapezium ✓
 C. Calcaneus D. Cuboid.
7. Which one is not true?
 A. Sperm can cross 1-4 mm of distance per second.
 B. Portion of demyelinated axon is known as nodes of Ranvier.
 C. Antigen remains dissolved in plasma. ✓
 D. Motor nervous system carries nerve impulse to various organs from central nervous system.
8. Centre for emotion anxiety is -
 A. Hypo thalamus ✓ B. Cerebrum
 C. Corpus striatum D. Thalamus.
9. Ptyaline & Maltase are found in -
 A. Intestinal juice B. Stomach
 C. Saliva ✓ D. Pancreas.

Zoology

Which one is not true?

- A. First thoracic and first abdominal spiracles of cockroach are always open and the rest are open or closed according to need.





10. Which one is not true?
 A. Stenotele is the largest nematocyst of Hydra.
 B. Tricuspid and Bicuspid valves remain closed during atrial diastole and ventricular systole.
 C. Lacuna of cartilage are filled with liquid.
 D. 'Rod' cells of retina are bright light sensitive.
11. Which one is not an eye muscle?
 A. Superior rectus B. Superior oblique
 C. External oblique D. External rectus.
12. Sometimes hydra uses its tentacles like legs and walk on the substratum. It is called
 A. Gliding B. Drowning
 C. Floating D. Walking ✓
13. Which one is not true?
 A. Final stage of asexual cycle of malarial parasite is sporozoate.
 B. There are ten pairs of spiracles in the tracheal system of cockroach.
 C. Gonadotropin is essential to start menstruation.
 D. Head of the femur is fixed in the acetabulum of pelvic girdle.
14. Which one is not a lipase enzyme?
 A. Lecithinase B. Inulinase ✓
 C. Esterase D. Cholesterolase.
15. % of excretion through human excretory system is -
 A. 70 B. 80 ✓
 C. 90 D. 100

General Knowledge

1. Number of 'Beer Protik' is -
 A. 426 ✓ B. 7
 C. 68 D. 175
2. Head quarter of INTERPOL is in -
 A. Paris B. London
 C. Lyon ✓ D. Rome
3. Head quarter of center on Integrated Rural Development for Asia and the Pacific (CIRDAP) is in -
 A. Dhaka ✓ B. New Delhi
 C. Manila D. Bangkok.
4. TAAS is the News agency of
 A. Philippine B. China
 C. Russia ✓ D. Israel
5. 'Bangladesh Rural Arts Museum' is at
 A. Paharpur B. Sonar Gaon ✓
 C. Moinamoti D. Dhaka

6. The border demarkation line between Pakistan and Afghanistan known as -
 A. Talcan line B. Macmohon line
 C. Radcliff line D. Durand line ✓
7. Architect of 'Sabash Bangladesh' is
 A. Shamem Shikdar B. Nilun Kundu ✓
 C. Hamidujjaman. D. Mreenal Haq
8. Head quarter of world food and Agricultural organization is in
 A. London B. Geneva
 C. Rome ✓ D. Paris.
9. 'International Environment Day' is on
 A. 5th June ✓ B. 9th March
 C. 21st May D. 31st May
10. Swedish Scientist Alfred Nobel did not introduce Nobel prize for -
 A. Peace B. Medical science
 C. Physics D. Economics ✓

English

1. If restated, the sentence that would best replace
 "As a conductor of heat and electricity, aluminium exceeds all metals except silver and gold."
 A. Silver and Gold are exceeded only by aluminium as conductors of heat and electricity.
 B. With the exception of aluminium, silver and gold are better than any other metal as conductors of heat and electricity.
 C. Silver and Gold are better conductors of heat and Electricity than aluminium is. ✓
 D. Aluminium is a better conductor of heat and electricity than silver and Gold.
2. "Hold water" means -
 A. Keep water for the dry season
 B. Bear examination
 C. Store water
 D. Patience ✓
3. Choose the right form of verb : I have the (little) money.
 A. least ✓ B. less
 C. slightest D. little
4. Which sentence would be the most appropriate continuation of "We didn't want to wake anybody up as....."
 A. We went for a walk by the sea.
 B. All the shops were shut.
 C. We came in very quietly. ✓
 D. We didn't know where we were going.
5. A person whose "head" is in the "clouds" is -
 A. Useless B. proud
 C. an aviator D. A day dreamer. ✓





6. For the following sentence, choose the one underlined word that is incorrect in standard written English :-

Overeating, in addition to lack of attention

A

to nutrition are said to be the major cause of

B C

obesity.

Ans :- B (are)

7. Choose the right preposition :-

He died accident

A. for

B. by ✓

C. at

D. of

8. The correct passive form of the sentence - "Take care of your health" is -

A. Let your health taken care of.

B. Health is taken care by you.

C. Let your health taken care.

D. Let your health be taken care of. ✓

9. Fill up the blank. The tree has been blown - by the strong wind.

A. off

B. away ✓

C. up

D. out

10. Choose the correct indirect speech -

He asked me "Are you happy in your job"?

A. He asked me if had been happy in my new job.

B. He asked me if I have been happy in my new job.

C. He asked me if I has happy in my new job. ✓

D. He asked me whether I am happy in my new job.

11. 'নূর্য অল যাত্য়োর পূর্বে আমরা কাজ করেছিলাম' Most appropriate translation of the sentence :-

A. We have been working before the sunset.

B. We had been working before the sunset.

C. We had worked before the sunset. ✓

D. We would have been working before the sunset.

12. Which would be an acceptable synonym of the word "hospitality"?

A. Welcome ✓

B. sick

C. pharmacy

D. Hospital.

13-15: Read the following paragraph and

answer question 13-15 on the page.

In 1992, the World Health Organization (WHO) reported that ten to twelve million adults and one million children worldwide had contracted HIV, the virus that causes AIDS, and they estimated that by the twenty-first century, forty million people would be infected. If the current trends continue, however, that estimate will fall far short of actual numbers, which may reach one hundred ten million. Beside people with high-risk behavior such as homosexual, female sex workers, truck drivers and injecting drug users, HIV infection rates have begun to increase in the general population. In addition there appears to be a change in the characteristics of AIDS victims. In the 1980s, homosexual men in large urban areas accounted for approximately two thirds of all AIDS cases. Women and children seemed to be on the periphery of the AIDS epidemic. But today almost ninety percent of new adult infections result from heterosexual contact. Consequently, the rates of exposure and infection are rising for women, with an accompanying rise in the number of children born to them with HIV in the twenty-first century. It is expected that the majority of AIDS victims will be heterosexual women and their young children.

13. According to the above passage, WHO estimate of people infected with HIV in the 21st century, compared to the current trend will be..... the actual number.

A. less than

B. almost equal to

C. more than ✓

D. far less than

14. Now, the people at risk for developing HIV include the

A. general population ✓

B. intravenous drug users.

C. homosexuals.

D. female sex workers

15. According to the passage, the segment of the will probably constitute majority AIDS cases in the 21st Century.

A. heterosexual men and women.

B. heterosexual women and children born to them. ✓

C. heterosexual women.

D. homosexual men.

